

FILIMONOV, A.A.; LOMOVA, L.G.; SHVOROV, V.S.; PAKHOMOV, V.I.; SONIN, A.S.

Generation of the second harmonic in potassium iodate single  
crystals. Kristallografiia 10 no.2:255-256 Apr '65.  
(MIRA 18:7)

I 58373-65 ENT(1)/ENC(b,-2 IJP(c)  
ACCESSION NR: AP5013726

UR/0070/65/010/003/0427/0428  
548.0:536

AUTHOR: Perfilova, V. E.; Sonin, A. S.

21

19  
18  
B

TITLE: The experimental detection of the Kerr effect in crystals without central symmetry

SOURCE: Kristallografiya, v. 10, no. 3, 1965, 427-428 .

TOPIC TAGS: Kerr effect, electrooptical photography, crystal symmetry, crystal syngony

ABSTRACT: The experimental detection and investigation of the square law electro-optical effect (the Kerr effect) requires its separation from the linear effect. This makes it necessary to find such directions of applied field and light propagation so that the variations in the optical indicatrix produced by the linear effect are absent. These directions can be found by comparing the variations in the optical indicatrices produced by the external field due to linear and square law effects. Information is presented on the directions of light and external electric field required to observe the Kerr effect in crystals of monoclinic, rhombic, tetragonal, trigonal, hexagonal and cubic syngony. "We wish to thank A. P. Lyubimov

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L 58373-65

ACCESSION NR: AP5013726

and I. S. Rez for reviewing these results."

ASSOCIATION: none

SUBMITTED: 04Oct64

ENCL: 00

SUB CODE: SS, OP

NO REF SOV: 001

OTHER: 000

Card

*XL*  
2/2

L 4267-66 EWT(1)/T IJP(c) GG

ACC NR: AP5024554

UR/0070/65/010/005/0701/0707  
548.0:537.228

AUTHOR: Perfilova, V. E.; Sonin, A. S.; Lomova, L. G. 44.55 44.55

TITLE: Change in the optical properties of crystals upon application of electric fields 21.44.55

SOURCE: Kristallografiya, v. 10, no. 5, 1965, 701-707

TOPIC TAGS: Kerr effect, crystal optic property, crystal structure

ABSTRACT: The paper gives an analytical treatment of changes in the optical indicatrices of crystals, arising under the influence of an external electric field as a result of the Kerr effect. All the results are tabulated. The basic regularities in the change of the optical indicatrix are discussed. In crystals of the rhombic, hexagonal (classes 6/mmm, 6 mm, 62, and 62) and cubic system when the field acts along the three principal directions, of the tetragonal and trigonal system in the  $\langle 001 \rangle$  and  $\langle 0001 \rangle$  directions, and of classes 4/mmm, 422, 42 m, and 4 mm (field directed along  $\langle 100 \rangle$  and  $\langle 001 \rangle$ ), the indicatrices are only deformed, without changing positions. The action of the field along  $\langle 001 \rangle$  and  $\langle 0001 \rangle$  in crystals of the tetragonal, hexagonal, and trigonal system does not decrease the symmetry of the indicatrices, and the crystal remains uniaxial. The symmetry of the indicatrix always decreases in crystals of the cubic system. In crystals of the tetragonal system (classes 4/mmm, 422, 4mm, and 42 m), the symmetry decreases when the field is applied along  $\langle 100 \rangle$ . The tables presented in the article should be useful for studies of the Kerr effect. "In conclusion, we thank I. S.

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L 4267-66

ACC NR: AP5024554

<sup>44,55</sup>  
Zheludev, L. A. <sup>44,55</sup> Shuvalov, A. P. <sup>44,55</sup> Lyubimov, and I. S. Rez <sup>12</sup> for a discussion of the results."  
Orig. art. has: 4 tables. <sup>44,55</sup>

ASSOCIATION: None

SUBMITTED: 14Oct64

ENCL: 00

SUB CODE: SS, OP

NO REF SOV: 002

OTHER: 001

Card 2/2 DP

L 57571-65 EWT(1)/EPA(s)-2/EWT(m)/EEC(t)/T/EWP(t)/EWP(b)/EWA(c) Pt-7/P1-4

ACCESSION NR: AP5016130

UR/0048/65/029/006/0965/0968

AUTHOR: Sonin, A.S.; Lomova, L.G.

TITLE: Changes in the optical properties of ferroelectric single crystals incident to phase transitions / Report, 4th All-Union Conf. on Ferroelectricity held in Rostov-on-the-Don 12-18 Sept 1964/

SOURCE: AN SSSR. Izvestiya.Ser.fizicheskaya,v.29, no.6, 1965, 965-968

TOPIC TAGS: ferroelectric crystal, double refraction, phase transition, polarization, deformation

ABSTRACT: The authors discuss theoretically the change in the birefringence of a ferroelectric crystal at the transition from the paraelectric to the ferroelectric phase. The double refraction is assumed to arise from the linear and quadratic electro-optical effect and the spontaneous polarization, and from the electro-elastic effect and the spontaneous deformation. The birefringence is proportional to the spontaneous polarization unless the crystal is centrally symmetric in the paraelectric phase. In the case of central symmetry the birefrin-

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L 57571-65

ACCESSION NR: AP5016130

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gence is proportional to the square of the spontaneous polarization. The theoretical conclusions are illustrated (and confirmed) by experimental data of B.Zwicker and P.Scherrer (Helv.phys.acta 17,346,1944) on  $\text{KH}_2\text{PO}_4$ , and by experimental data of W.Merz (Phys.Rev.76,1221,1949) on  $\text{BaTiO}_3$ . "In conclusion, we express our gratitude to I.S.Zheludev and L.A.Shuvalov for discussing the results of the work." Orig.art. has: 7 formulas and 2 figures.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: SS,OP

NR REF SOV: 002

OTHER: 004

Card <sup>1/2</sup> 2

L 57570-65 EWT(1)/EPA(s)-2/EWT(m)/EPF(c)/EWP(j)/EEC(t) Pc-4/Pr-4/Pt-7/Pl-4

IJP(c) GG/RM

ACCESSION NR: AP5016131

UR/0048/65/029/006/0969/0972

AUTHOR: Sonin, A.S.; Perfilova, V.E.; Vasilevskaya, A.S.

TITLE: Electro-optical properties of triglycine sulfate. 1. Report,  
4th All-Union Conference on Ferroelectricity held in Rostov-on-the-  
Don 12-18 Sept 1964/

SOURCE: AN SSSR. Izvestiya.Ser.fizicheskaya,v.29,no.6,1965, 969-972

TOPIC TAGS: ferroelectric crystal,<sup>2</sup> triglycine sulfate, double refraction

ABSTRACT: The electro-optical properties of triglycine sulfate were investigated both above and below the Curie point. Two Y-cut crystals were so mounted that their initial double refraction compensated each other. An electric field up to 22 kV/cm was applied to one of the crystals and the crystals were examined between crossed polaroids with monochromatic (5350 Å) light. The transmission of the system increased with increasing applied field and was independent of the direction of the applied field. It is concluded that the quadratic or a "pseudo-

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L 57570-65  
ACCESSION NR: AP5016131

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quadratic" electro-optical effect is involved. Some hysteresis was observed. This may be due either to a parasitic effect of surface charges or to hysteresis of the elasto-optical effect. The transmission increased most rapidly with the applied field at temperatures very near the Curie point; the change was much less rapid at only a few degrees above or below the Curie point. "In conclusion, we express our gratitude to I.S.Zheludev, L.G.Lomova and I.S.Rez for discussing the results of the work, and to I.A.Slepko and M.P.Kalitina for assistance with the experiment." Orig.art.has: 2 formulas and 3 figures.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: SS,OP

NR REF SOV: 001

OTHER: 008

AP  
Card 2/2

L 7837-66 EWT(m)/EPF(c)/EWP(j) RM  
 ACC NR: 4P5028105 SOURCE CODE: DR/0048/65/029/011/1996/1999  
 AUTHOR: <sup>4455</sup> Sonin, A.S.; Gorbach, S. S. 59  
 ORG: none 53  
 TITLE: <sup>7,4455</sup> Dielectric loss in triglycine sulfate crystals [Report, Fourth All-Union  
 Conference on Ferro-electricity held at Rostov-on-the Don 12-16 September 1964] III, 4455  
 SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 11, 1965, 1996-1999  
 TOPIC TAGS: ferroelectric crystal, single crystal, dielectric constant, dielectric  
 loss, Curie point, electric domain structure  
 ABSTRACT: The dielectric constants and dielectric losses of triglycine sulfate  
 single crystals cut perpendicular to the crystallographic axes were measured at  
 temperatures from 20 to 70°C and frequencies from 0.5 kc to 25 Mc. The measurements  
 below 5 kc were made with a bridge and those above 50 kc with a Q-meter. The 22  
 component of the dielectric constant (measured along the ferroelectric axis) and the  
 corresponding loss tangent had pronounced maxima at (or near) the Curie point. The  
 maximum of the loss tangent occurred at a temperature of the order of 1°C below that  
 of the dielectric constant; this temperature shift decreased slightly with increasing  
 frequency and increased considerably (as did the magnitude of the loss tangent) when  
 the strength of the measuring field was increased from 15 to 45 V/cm. The loss tangent  
 decreased with increasing frequency. For highly unipolar specimens the loss tangent  
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L 7837-66

ACC NR: AP5028103

6  
was small at all frequencies above 5 kc. The dielectric constants and loss tangents measured in the 33 direction behaved quite differently, the dielectric constant showing only a small narrow peak at the Curie point and the loss tangent showing only an abrupt change of slope but no maximum at the Curie point itself. The relaxational nature of the dielectric loss in triglycine sulfate, which was established at room temperature by V.M.Petrov (Kristallografiya, 4, 632 (1961)), persists at temperatures near the Curie point, in highly unipolar specimens, however, where most of the domains do not participate in polarization reversal, the relaxation maximum is not prominent. It is concluded that investigation of dielectric losses can contribute significantly to the study of domain structure in ferroelectrics. The authors thank I.S.Zheludev and I.S.Rez for discussing the results. Orig. art. has: 8 figures.

44,55  
SUB CODE: SS,EM

SUBM DATE: 00/

ORIG. REF: 004

OTH REF: 002

Cord 2/2 <sup>570</sup>

L 14132-66 EWT(1)/EWT(m)/T/EWP(t)/EWP(b) IJP(c) JD

ACC NR: AP6000876

SOURCE CODE: UR/0181/65/007/012/3657/3660

AUTHORS: Meysner, L. B.; Sonin, A. S.

54  
53

ORG: none

TITLE: <sup>21, 44, 55</sup>Optic anisotropy of tetragonal single crystals of barium and lead titanates 27

SOURCE: Fizika tverdogo tela, v. 7, no. 12, 1965, 3657-3660

TOPIC TAGS: lead compound, titanate, barium titanate, crystal anisotropy, single crystal, double refraction, ferroelectric crystal, electrooptic effect

ABSTRACT: In view of the fact that earlier investigations have shown that the birefringence of  $\text{BaTiO}_3$  and  $\text{PbTiO}_3$  has theoretically a sign opposite that observed experimentally, and in view of the unsatisfactory explanation of this difference by W. Kinase et al. (Phys. Rev. v. 116, 348, 1959), the authors have recalculated the birefringence of  $\text{BaTiO}_3$  and  $\text{PbTiO}_3$  due to only the anisotropy of the internal

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L 14132-66

ACC NR: AP6000876

fields, with exact account of the tetragonal nature of the unit cells. The calculations were performed with an electronic computer, with account of the tetragonality and displacement of the ions. The results yielded values of  $n_c - n_a = -0.018$  for  $\text{BaTiO}_2$  and  $n_c - n_a = -0.126$ , so that these single crystals are found to be optically negative, as confirmed by experiment, in contrast with the earlier calculations. However, the obtained values themselves differ considerably from the experimental values, the discrepancy being attributed to an incorrect choice of the polarizabilities. At any rate, it is concluded that the spontaneous electro-optical effects of ferroelectric single crystals, which is manifest in a change of the birefringence as a result of spontaneous polarization, is an inherent property of the structures of these crystals, and should not lead to a change in the sign of the birefringence. Authors thank V. Ya. Yershov for help in the calculations. Orig. art. has: 3 formulas and 2 tables.

SUB CODE: 20/ SUBM DATE: 01Jul65/ ORIG REF: 001/ OTH REF: 008

Card

2/2

L 18762-66

ACC NR: AP6003769

electric field should cause the crystal to become uniaxial, with the principal axes of the deformed indicatrix coinciding with principal axes of the undeformed indicatrix. This was checked with a crystal in the form of a disc 3 mm in diameter and 0.5 mm thick placed in a special thermostat between crossed polaroids in such a way that the principal axes of the indicatrix were at angles  $\pm 45^\circ$  to the axes of the polaroids. The light source was a monochromator (UM-2) and the indicator was a photomultiplier (FEU-19M). A path difference of one-half wavelength was attained at field intensities 6.6 -- 8.8 kv/cm.

The quantity  $(R_{11} - R_{12})n_0^3$ , which is a measure of the induced birefringence  $BaTiO_3$ , decreased linearly with the temperature ( $R_{11}$  and  $R_{12}$  are the constants of the quadratic electrooptical effect). The results indicate that the crystals are subject to a fourth-order electrooptical effect. The measurements were made at 4100 Å, but the electrooptical effect is almost independent of the wavelength. Its variation with the voltage was also studied and found to be parabolic. Further information on the effect can be obtained by investigating the linear electrooptical effects near the Curie point on the ferro-

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L 18762-66

ACC NR: AP6003769

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electric phase side. Authors thank I. S. Zheludev, A. S. Vasilevskaya,  
I. S. Rez, and A. P. Lyubimov for a discussion and Ye. G. Fesenko  
for supplying the samples. Orig. art. has: 5 figures and 5 formulas.

SUB CODE: 20/ SUBM DATE: 01Jul65/ OTH REF: 004

Card

3/3 SM

L 04621-67 EWT(1)/EWP(e)/ENT(m)/T IJP(c) WH

ACC NR: AP6032963

SOURCE CODE: UR/0070/66/011/005/0832/0848

AUTHOR: Suvorov, V. S.; Sonin, A. S.

ORG: none

TITLE: Nonlinear optical materials

SOURCE: Kristallografiya, v. 11, no. 5, 1966, 832-848

TOPIC TAGS: laser, nonlinear effect, laser modulation, nonlinear optics, KDP crystal, harmonic analysis, crystal optic property, anisotropic medium

ABSTRACT: The review consists of a brief discussion of the phenomenological theory of nonlinear polarization at optical frequencies in anisotropic media, and of the methods of detecting and studying the second harmonic and nonlinear optical properties of materials, with emphasis on single crystals. Generation of the second harmonic with the ruby laser as the input source has been studied in crystals of the KDP group (KDP, KDA, DKDP, ADP, RDP, and DADP etc.). Encouraging results in growing large single crystals of DKDP and DADP have been achieved by A. S. Vasilevskaya et al. (to be reported in: Kristallografiya). The second harmonic conversion efficiency in the index matching direction is approximately the same for all KDP-group crystals except RDP, whose single crystals are twice as effective as KDP. Other types of crystals considered here are (Na, K) NbO<sub>3</sub>, SiO<sub>2</sub>, NaClO<sub>3</sub>, tourmaline, TGS, KNaC<sub>4</sub>H<sub>4</sub>O<sub>6</sub>, NaBrO<sub>3</sub>, GSeH, GGS, and GASH. Recently, a ruby laser was used to obtain second harmonic generation in certain amino acids and sugars, and in single crystals of hyppuric acid

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UDC: 548.0 : 537.228

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L 04621-67

ACC NR: AP6032963

(see: Orlov, R. Yu. Kristallografiya, v. 11, 1966, p. 463). In Orlov's case, the harmonic output power was comparable to that of KDP crystals. Further theoretical research is expected to correlate the capability to generate the second harmonic with the ferroelectric properties of crystals. Of practical importance is the search for new, more effective crystals, particularly those including structural groups characterized by a high electronic polarizability. Orig. art. has: 13 formulas, 12 figures, and 7 tables.

SUB CODE: 20/ SUBM DATE: 19May65/ ORIG REF: 047/ OTH REF: 016/ ATD PRESS: 5100

Card 2/2 LC

ACC NR: APO37018

(A,N)

SOURCE CODE: UR/0181/66/001/011/3434/3436

AUTHOR: Vasilevskaya, A. S.; Sonin, A. S.

ORG: none

TITLE: Electrooptical and elasto-optical properties of deuterated dihydrophosphate ammonium crystals

SOURCE: Fizika tverdogo tela, v. 8, no. 11, 1966, 3434-3436

TOPIC TAGS: electrooptic effect, elasto-optic effect, ammonium phosphate, deuterium compound

ABSTRACT: The authors report on an investigation of the electrooptical and elasto-optical effects in  $\text{ND}_4\text{D}_2\text{PO}_4$  crystals in the temperature interval from room to the Curie point. The electrooptic coefficients were determined under static conditions in mechanically free crystals, and the piezoelectric coefficient, which determines the secondary electrooptic effect, was measured in isolated samples without electrodes, using a procedure described by one of the authors earlier (Vasilevskaya, Kristallografiya v. 10, 425, 1965). All the measurements were made in a thermostat at a constant wavelength 5350 Å. The linear and quadratic electro-optical effects were determined separately by birefringence measurements. The linear coefficient was found to be  $1.3 \times 10^{-7}$  esu, and the quadratic one, which was found to depend on the polarization (owing to the fact that the nonlinear terms of higher order are still quite large), was found to be  $4 \times 10^{-10}$  esu at a polarization of  $0.02 \mu\text{Coul}/\text{cm}^2$ . The

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ACC NR: AF6037018

quadratic coefficient increases with temperature more rapidly than the linear one. The piezooptic coefficient was found to be practically independent of the temperature. When the piezooptic effect is taken into account, the value of the electrooptic coefficient decreases from  $\sim 1.8 \times 10^{-7}$  to  $\sim 1.4 \times 10^{-7}$  esu. The authors thank L. N. Rashkovich and V. A. Koptsik for supplying the crystals, I. A. Slepko and M. P. Kalitina for help with the experiments, and I. S. Rez and V. E. Perfilova for a discussion of the results. Orig. art. has: 2 figures and 3 formulas.

SUB CODE: 20/ SUBM DATE: 18Mar66/ ORIG REF: 002/ OTH REF: 006

Card 2/2

ACC NR: AP0037019

(A,N)

SOURCE CODE: UR/0181/66/007/011/3436/3439

AUTHOR: Sonin, A. S.; Vasilevskaya, A. S.; Strukov, B. A.

ORG: none

TITLE: Electrooptical properties of crystals of potassium dihydrophosphate and deuterated potassium dihydrophosphate in the region of phase transitions

SOURCE: Fizika tverdogo tela, v. 8, no. 11, 1966, 3436-3439

TOPIC TAGS: electrooptic effect, potassium compound, deuterium compound, phase transition, ferroelectricity, Curie point, temperature dependence, piezooptic effect

ABSTRACT: The reason for this study is that the electrooptical properties of single-crystal KDP and DKDP have not been thoroughly investigated in the ferroelectric rhombic phase. The study was made in the static mode at wavelength 5350 Å. The investigated sample consisted of two identical KDP and DKDP plates so arranged that their initial birefringence was compensated. The first plate was placed in an optical cryostat in which the temperature was maintained within  $\pm 0.01^\circ\text{C}$ , the circuitry used was described elsewhere (PTE no. 1, 184, 1961). The measured temperature dependence of the electrooptic coefficients of the two crystals shows that on approaching the Curie points, these coefficients increase rapidly in accordance with a hyperbolic law, reaching at the Curie points themselves values of  $1.5 \times 10^{-3}$  and  $2.5 \times 10^{-3}$  esu for KDP and DKDP, respectively. The voltages required to produce a half-wavelength path difference were very low, 12 volts for KDP and 7 volts for DKDP. The percentages of

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ACC NR: AP0037019

the primary electrooptical effects were found to be 92 and 93% respectively. Measurement of the piezooptic constant of the DKDP crystals as a function of the temperature in the range from -40C to room temperature at the same wavelength shows the piezooptic constant to be almost independent of the temperature and to have no anomalies on approaching the Curie point. This is evidence that the contribution of the primary effects of the summary electrooptic effect of a mechanically free DKDP crystal does not change when the Curie point is approached from the paraelectric phase side, and the anomaly of the electrooptic effect is electronic in nature. The authors thank I. A. Slepko and M. P. Kalitkina for help with the experiments, and also I. S. Rez and L. G. Lomova for a discussion of the results. Orig. art. has: 2 figures, 3 formulas, and 1 table.

SUB CODE: 20/ SUBM DATE: 18Mar66/ ORIG REF: 003/ OTH REF: 003

Card 2/2

NOVIKOV, Viktor Aleksandrovich; SONIN, Boris Aleksandrovich; KOSACHEV, M.N.,  
kand.tekhn.nauk; GOMOZOVA, N.A., tekhn.red.

[Parameters of mass blasts; practices of quarries of the Trust of the  
State All-Union Association for the Mining and Enrichment of Asbestos  
and for the Production of Asbestos Products] Parametry massovykh  
vzryvov; opyt kar'eroi trest "Soyuzasbest." Moskva, Gos. izd-vo lit-ry  
po stroit. materialam. 1957. 99 p. (Vsesoyuznyi nauchno-issledovatel'skii  
institut asbestotsementnykh izdelii. Trudy, no.6)

(MIRA 11:9)

(Blasting) (Asbestos)

NOVIKOV, V.A., gornyy inzhener; SONIN, B.A., gornyy inzhener.  
~~XXXXXXXXXXXXXXXXXXXX~~

Efficiency of short-delay blasting according to methods of  
the All-Union Drilling and Blasting Trust. Gor. zhur. no.4:  
49-52 Ap '57. (MLRA 10:5)

1. Filial instituta VNIIasbesttsement.  
(Blasting)

TURUTA, N.U., dotsent; GALIMULLIN, A.T., inzh.; SONIN, B.A., inzh.

Experimental investigation and prospects for the use of inclined, small-diameter shafts, in opencut workings. Izv.vys. ucheb.zav.; gor.zhur. no.4:65-73 '59. (MIRA 13:5)

1. Sverdlovskiy gornyy institut imeni V.V.Vakhrusheva (for Turuta and Galimullin). 2. Nauchno-issledovatel'skiy institut asbest (for Sonin).

(Strip mining)



SONIN, B. A.

Cand Tech Sci - (diss) "Study of rational parameters of massive explosions of shattering effect (under conditions of open pit work of the "Soyuzasbest" Trust)." Magnitogorsk, 1961. 20 pp; with nomographs; (Ministry of Higher and Secondary Specialist Education RSFSR, Magnitogorsk Mining-Metallurgical Inst imeni G. I. Nosov); 120 copies; free; (KL, 7-61 sup, 246)

SONIN, B.A., gornyy inzhener

Improving boring and blasting operations in asbestos pits. Vzryv.  
delo no.47/4:20-38 '61. (MIRA 15:2)

1. NIIAsbest.

(Bazhenovo region (Sverdlovsk Province)--Blasting) (Boring)

TITARENKO, Petr Yakovlevich; TEREKHIN, Vyacheslav Nikolayevich;  
REMENNIK, Lev Moiseyevich; SUKHANOV, Afanasiy Filimonovich;  
NAZAROV, Petr Petrovich; KUTUZOV, Boris Nikolayevich;  
TOKAR', Moisey Grigor'yevich; SONIN, Boris Aleksandrovich;  
SOFRONOV, Fedor Petrovich; GEYMAN, L.M., red.izd-va;  
LAVRENT'YEVA, L.G., tekhn. red.

[New developments in boring and blasting operations in  
asbestos open pit mines] Novoe v burovzryvnykh rabotakh na  
asbestovykh kar'erakh. Moskva, Gosgortekhzdat, 1963. 68 p.  
(MIRA 16:10)

(Asbestos mines and mining) (Blasting)

SOFRONOV, F.P.; TITARENKO, P.Ya.; TUTOV, M.P.; LISIN, G.Ya.; SONIN, B.A.

"Deep open-pit mines" by M.G.Novozhilov, V.G.Selianin. Gor. zhur no.4:  
77-78 Ap '63. (MIRA 16:4)  
(Strip mining) (Novozhilov, M.G.) (Selianin, V.G.)

BELOV, M.A., gornyy inzh.; SONIN, B.A., kand. tekhn. nauk

Crushing parameters of large-scale blasting in large pits in  
the central Urals. Varyv. delo no.53/10:177-194 '63.  
(MIRA 16:8)

(Ural mpuntains--Blasting)

AKSEL'RAD, E.L., kand.tekhn.nauk (Leningrad); SONIN, E.B., inzh. (Leningrad)

Large axisymmetrical flexures of a plate. Rasch.prostr.konstr.  
no.7:193-204 '62. (MIRA 15:4)

(Elastic plates and shells)

S/057/62/032/006/020/022  
B108/B102

26.1640  
AUTHORS:

Martsinovskiy, A. M., Pikus, G. Ye., Sonin, B. E., and  
Yur'yev, V. G.

TITLE:

Effect of electrode barriers on the electrical conductivity  
of a cesium plasma

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 32, no. 6, 1962, 770 - 772

TEXT: In an earlier paper (Fiz. Tsvet. II, no. 4, 756, 1960) a method was proposed for determining the scattering cross section from measurements of the electrical conductivity of a cesium plasma. It was not considered, however, that the electron work function depends on temperature and pressure of the Cs vapor. In order to explain the effect of the electrode barriers, the authors of the present paper used a special arrangement with movable electrodes to measure the dependence of the plasma resistivity  $R$  on the length  $d$  of the gap between the electrodes. It was found that  $R$  increases linearly with  $d$ . Measurements with  $d = 0$  showed that at high temperatures there is an additional resistance owing to a layer of cesium adsorbed on the electrodes. This layer increases the work function. This

Card (1/2)

L 18354-63 EWT(1)/EWG(k)/BDS/ES(w)-2 AFFTC/ASD/ESD-3/AFWL/IJP(C)/SSD  
 Pz-l/Pi-l/Po-l/Pab-l AT S/0057/63/033/007/0372/0881  
 ACCESSION NR: AP3003961

AUTHOR: Sonin, E.B.

TITLE: Influence of the regions near the electrodes on the resistances of a weakly ionized plasma

SOURCE: Zhurnal tekhnicheskoy fiziki, v.33, no.7, 1963, 872-881

TOPIC TAGS: plasma, resistance, electrode effect

ABSTRACT: The resistance of a plasma between plane electrodes has previously been calculated in the framework of diffusion theory, with the barrier regions near the electrodes taken into account. When the work function of the electrodes exceeds the chemical potential in the plasma, the correction due to the barrier regions can be large. The diffusion theory calculations are repeated, making use of the following assumptions: 1) ionization and recombination in the interelectrode region can be neglected; 2) scattering in the barrier regions (within about a Debye radius of the electrodes) can be neglected; 3) the quasi-neutrality condition obtains except within the barrier regions; 4) energy exchange between the electrons and atoms in the interelectrode region can be neglected; and 5) the ions, atoms, and electrons are all at

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ACCESSION NR: AP3003961

the same temperature. When the chemical potential of the electron in the plasma exceeds the work function of the electrodes, a moderate correction to the resistance is found that is independent of the height of the barrier (the difference between the work function and the chemical potential). In the opposite case, the correction depends exponentially on the barrier height. The principal source of error in the diffusion calculations is recognized to lie in the boundary conditions employed, for these would be valid only if the velocity distribution would remain Maxwellian even at the electrodes. Most of the balance of the paper is devoted to a repetition of these calculations on the basis of the kinetic equation, with the deviations from the Maxwellian distribution taken into account. The results obtained from the kinetic equation are qualitatively similar to those of the diffusion theory, but the corrections to the resistivity are somewhat smaller. "In conclusion, I express my gratitude to G.Ye.Pikus for guidance and help in the work and for discussions of the results." Orig.art.has: 49 formulas and 3 figures.

ASSOCIATION: none

SUBMITTED: 26Jul62

DATE ACQ: 07Aug63

ENCL: 00

SUB CODE: PH

NO REF SOV: 004

OTHER: 005

Card 2/2

SONIN, E. V.

7  
Polychloro terpenes. A. L. Englin, E. V. Sonin, and S.  
P. Ruzumovskii. U.S.S.R. 164,224, Nov. 25, 1958. Ter-  
penes or their hydrochlorides are chlorinated in the dark in  
the presence of  $\text{Me}_3\text{C}(\text{CN})\text{N}_2$  in not less than 0.1% of the  
wt. of the product.

M. Hosen

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SONIN, E. V.

15  
✓ Perchlorovinyl resins. A. L. Buglin, E. V. Sonin, V. P. Kouchil, and V. L. Grunshenkov. U.S.S.R. 105,456.

May 25, 1957. Vinyl chloride polymers are chlorinated in the presence of  $\text{Br}_2\text{O}_3$ , azodisobutyronitrile. The chlorination is carried out in chlorobenzene or dichloroethane.  
M. Hosen

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OVCHINNIKOV, P.; SONIN, G.

Bank control in financing construction. Den. 1 kred. 17 no.12:14-19  
D '59. (MIRA 12:12)  
(Banks and banking) (Construction industry--Finance)

SONIN, G.

Analyzing reports and auditing the capital investment financial  
and economic operations of the state farms. Den. 1 kred. 18 no.10:  
64-73 0 '60. (MIRA 13:10)  
(Banks and banking) (State farms--Finance)

SONIN, G.

Control over an estimated limit of construction financing.  
Den. i kred. 19 no. 11:81-85 N '61. (MIRA 14:12)  
(Construction industry--Finance)  
(Banks and banking)

SONIN, G.

Business accounting construction contracting organization. Den.1  
kred. 20 no.5:31-35 My '62. (MIRA 15:5)  
(Construction industry—Finance)

SONIN, G.

Analysis of construction costs. Den. i kred. 21 no. 2:77-83 P  
'63. (MIRA 16:2)

(Construction industry--Costs)



SONIN, G.I.; ADERIKHINA, N.P., agronom

Raising the productivity of labor and lowering the cost of  
production on the Kirov Collective Farm. Zemledelie 7 no.10:  
15-18 0 '59. (MIRA 13:1)

1. Predsedatel' kolkhosa imeni Kirova, Peremyshl'skogo rayona  
Kalushskoy oblasti.  
(Peremyshl' District--Collective farms)

YEFIMOV, V.A., doktor tekhn. nauk; KUZEMA, I.D., kand. tekhn. nauk;  
ZHIGULA, A.V., inzh.; SAPKO, V.N., inzh.; KISSEL', N.N.,  
inzh.; CHERNYSHEV, I.S., inzh.; ZARUBIN, N.G., inzh.;  
STRYAPIN, I.Ya., inzh.; OLESHKEVICH, T.I., inzh.; SONIN, G.V.,  
inzh.; PUKALOV, V.P., inzh.

Rapid top pouring of rimmed steel from ladles with a  
capacity from 350 to 480 tons. Stal' 24 no.1:30-32 Ja '64.  
(MIRA 17:2)

SONIN, G.Ye., inzhener.

Automatic reclosing system with self-synchronization for synchronous compensators. Elek.sta. 25 no.12:48-49 D '54. (MLRA 7:12)  
(Electric machinery)

SLAVNOVA, Ye.N.; SONIN, I.N.

Density of synthetic corundum. Trudy Inst.krist.no.8:35-40 '53.  
(MIRA 7:5)  
(Corundum)

1. XXII, 1.
2. USA. (6-6)
4. Public Utilities
7. Raising the level of courses in the various republics. Zhil.-kom. khoz. 2, No. 11, 1952.
9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

Berlin, G.

DI. Amstutz, Fritz. "The Berlin Wall: A History of the Wall." Berlin, G.  
Hinter, G. 1981.  
181. 1. 1981.  
Translation from the Russian, "The wall: a history of the wall." Moscow, 1980.  
Hinter, Fritz. 1981.

Training skilled workers in industry.

T135.S63 1954

1. Technical education - Russia.
2. Employees, Training of.

BUKHANEVICH, B.; SONIN, M.

Interregional regulating wages in the U.S.S.R. Vop. ekon.no.1:16-  
28 Ja '57. (Wages) (MLRA 10:3)



SONIN, M. (g. Tula)

Methodical seminar for chemistry teachers. Khim. v shkole 13  
no.4:79 J1-Ag '58.

(MIRA 11:6)

(Chemistry--Study and teaching)

SONIN, M.; MECHKOVSKIY, G.

Write a valuable textbook on labor economics ("Labor economics."  
Reviewed by M. Sonin, G. Mechkovskiy. Vop.ekon. no.10:125-132  
O '58. (MIRA 11:11)  
(Economics--Textbooks) (Labor and laboring classes)

SONIN, M.; KAPITONOV, B.

Role of secondary schools in the training of qualified  
personnel. Sots.trud 4 no.9:18-26 S '59. (MIRA 13:1)  
(Technical education)

SONIN, M.

Problems of the utilization of labor resources in Siberia and the  
Far East. Vop. ekon. no.2:102-111 P '60. (MIRA 13:1)  
(Siberia--Labor and laboring classes)  
(Soviet Far East--Labor and laboring classes)

SONIN, M.

In schools of advanced practices of communal enterprises.  
Zhil.-kom.khoz. 10 no.1:7-8 '60. (MIRA 13:5)

1. Starshiy inzhener otдела kadrov i uchebnykh zavedeniy  
Ministerstva kommunal'nogo khozyaystva RSFSR.  
(Technical education)

SONIN, M., inzh. (Moskva)

We need more specialists in the service trades. Zhil.-komm. khoz.  
13 no.2:19 '63. (MIRA 16:3)

(Service industries)

MOROZOV, V., inzh.; SONIN, M., inzh.

Field (channel) transistors. Radio no.5:53-54 My '65. (MIRA 18:5)

MOROZOV, V., inzh.; SONIN, M., inzh.

Characteristics and parameters of field effect transistors.  
Radio no.7:44-46 J1 '65. (MIRA 18:9)



SONIN, M. V.

"Reconstruction of the systematics of the nematodes of the suborder Filariata."

report submitted for 1st Intl Cong, Parasitology, Rome, 21-26 Sep 1964.

Lab of Helminthology, AS USSR, 31 Leninskiy Prospekt, Moscow.

SPASSKIY, A.A.; SONIN, M.D.

*Ornithofilaria tuvensis*, sp.n., a new filaria from subcutaneous cellular tissues of gallinaceous birds [with summary in English].  
Zool.zhur. 36 no.3:1150-1158 Ag.'57. (MLRA 10:9)

1. Gel'mintologicheskaya laboratoriya Akademii nauk SSSR.  
(Tuva Autonomous Province--Nematoda) (Parasites--Gallinae)

SPASSKIY, A.A.; SONIN, M.D.

Bird fauna of the Tuva Autonomous Province. Ornitologiya  
no.2:184-187 '59. (MIRA 14:7)  
(Tuva Autonomous Province--Birds)

TENDETNIK, Yu.Ya.; SONIN, M.D.; SHAGALINA, L.M.

Studying helminths of wild birds of southern Turkmenistan. Izv.  
AN Turk. SSR. Ser. biol. nauk no.6:78-85 '61. (MIRA 15:1)  
(TURKMENISTAN PARASITES--BIRDS)  
(WORMS, INTESTINAL AND PARASITIC)

SONIN, M.D.

Revising the classification of nematodes of the subfamily  
Splendidofilariinae Chabaud et Choquet, 1953. Trudy Gel'm. lab.  
11:242-250 '61. (MIRA 15:12)  
(Filaria and filariasis)

SPASSKIY, A.A.; SONIN, M.D.

Work of the Kamchatka Helminthological Expedition (317th All-  
Union Helminthological Expedition) in 1959. Trudy Gel'm.lab.  
11:414-431 '61. (MIRA 15:12)  
(Kamchatka--Worms, Intestinal and parasitic)

SPASSKIY, A.A.; SONIN, M.D.; PARAMONOV, G.V.

Ornithofauna of the middle Amur Valley. Ornitologiya no.5:  
161-163 '62. (MIRA 16:2)

(Amur Province—Birds)

SONIN, M.D.-----

Nematodes of the genus *Diplostriaena* from birds of the Soviet  
Union. Trudy Gel'm. lab. 12:139-165 '62. (MIRA 15:7)  
(Parasites--Birds) (Nematoda)



S<sup>2</sup>ASSKIY, A.A.; BOGOYAVLENSKIY, Yu.K.; SONIN, M.D.

Work of the Chukchi helminthological expedition ( the 318th  
All-Union Helminthological Expedition) in 1961. Trudy Gel'm. lab.  
13:382-386 '63 (MIRA 17:3)

SONIN, M.D.

Filarias of birds of the Soviet Far East. Trudy Gel'm. lab.13:  
227-249 '63 (MIRA 17:3)

SONIN, M.D.; SHUMILO, R.P.

New genus of filariids *Pseudlemdara* nov. gen. from the subcutaneous  
cellular tissue of birds. Trudy Gel'm. lab. 14:194-196 '64.  
(MIRA 17:10)

AZAROVA, N.S.; MIRETSKII, O.Ya.; SONIN, M.D.

First case of detecting the nematode *Onchocerca* dieasing, 1341  
in a human in the U.S.S.R. Muz. paraz. i paraz. bol. 34 no.2:  
156-158 Mr-Apr '65. (MIRA 18:11)

1. Krymskiy meditsinskiy institut, Simferopol, i gel'mintologicheskaya laboratoriya AN SSSR, Moskva.

SONIN, M.D.

New genus of nematodes *Parornithofilaria* Sonin nov. gen.  
(Filariata, Splendidofilaridae) and the revision of the  
subfamily Splendidofilariinae. Trudy Gel'm. lab. 15:140-144  
'65 (MIRA 19:1)

AID P - 2911

Subject : USSR/Electricity

Card 1/2 Pub. 26 - 8/32

Authors : Nekrasov, A. M. and M. R. Sonin, Engs.

Title : Experiment in high voltage d-c power transmission

Periodical : Elek.sta., 7, 26-32, J1 1955

Abstract : The advantages of transmitting electric energy in direct current is discussed. The author analyzes, however, the resulting increased cost in power and equipment. The equipment used and the operation of an experimental d-c transmission line supplying industrial installations is presented in detail. This line includes transformer, rectifier and inverter substations and a double 200 kv line. The results of this experiment are briefly discussed, and some recommendations are made. Seven photos and diagrams.

AID P - 3029

Subject : USSR/Electricity

Card 1/2 Pub. 27 - 16/33

Authors : Pimenov, V. P., Kand. of Tech. Sci., and M. R. Sonin, Eng.

Title : High-voltage D-C power transmission

Periodical : Elektrichestvo, 7, 93-99, J1 1955

Abstract : The authors describe an experimental installation. The technical data of the transmission are: voltage between the terminals is 200 kv, current is 150 a, transmitted capacity, 30,000 kw. The rectifier and inverter substations are connected with a 200-kv, 112-km long cable. These substations are built on the three-phase bridge-circuit scheme. Maximum current of each rectifier is 150 a, and negative voltage is 120 kv. Tests were started in December 1950. At the nominal voltage, the number of disturbances was high, and all the investigations made tended to eliminate them. Various kinds of

SCHIN, M.F.

Results of the study of the operation of an experimental industrial  
d.c. power transmission system between Kashira and Moscow. Izv.  
NIIPT no.2:5-21 '57. (MIRA 18:9)



NEYMAN, L.R.; TOLSTOV, Yu.G., doktor tekhn. nauk; PIMENOV, V.P., kand. tekhn. nauk; POSSE, A.V., kand. tekhn. nauk; SAKOVICH, A.A., kand. tekhn. nauk; BUTAYEV, F.I., kand. tekhn. nauk; MEL'GUNOV, N.M., inzh.; SONIN, M.R., inzh.

[Long-distance high-voltage direct-current transmission] Peredacha energii postoiannogo toka vysokogo napriazhenia na dal'nie rastoiania. Pod red. L.R. Neimana. Moskva, 1958. 64 p. (MIRA 11:10)

1. Russia (1923- U.S.S.R.) Sovet Ministrov. Gosudarstvennyy nauchno-tekhnicheskii komitet. 2. Chlen-korrespondent Akademii nauk SSSR (for Neyman).

(Electric power distribution)

8(3)

AUTHORS:

Sonin, M. R., Engineer

SOV/105-59-5-22/29

Ryvkin, A. M., Candidate of Technical Sciences

TITLE:

Project for the Direct-current Transmission Across the English Channel (Proyekt peredachi postoyannogo toka cherez Lamansh)

PERIODICAL:

Elektrichestvo, 1959, Nr 5, pp 86-88 (USSR)

ABSTRACT:

Mention is made of the communication in Elektrichestvo, 1957, Nr 7, (Ref 3), and an abstract is given here on the basis of the following papers in English: 1) Lidem, J., ASEAJ, 1958, v 31, Nr 6, p 70; 2) Lamm, U., Direct Current, 1958, v 4, Nr 1, p 1; 3) Forssell, H., Direct Current, 1955, v 2, Nr 5, p 109 and Nr 7, p 166; 4) Uhlemann, E., Direct Current, 1953, v 1, Nr 5, p 105. There are 3 figures, 1 table, and 5 references, 1 of which is Soviet.

Card 1/1

ACC NR: AT6008790

SOURCE CODE: UR/2657/65/000/014/0196/0210

AUTHOR: Karmazinskiy, A. N.; Kheyfets, A. Sh.; Malin, B. V.; Sonin, M. S.

ORG: none

TITLE: Register using field-effect transistors

SOURCE: Poluprovodnikovyye pribory i ikh primeneniye; sbornik statey, no. 14, 1965, 196-210

TOPIC TAGS: shift register, transistorized circuit, field effect transistor

ABSTRACT: A shift register based on flip-flops consisting of d-c-coupled field-effect transistors is described. Two variants, differing only in the reset circuits for each flip-flop, were tested. The two reset variants are shown in Fig. 1. A 2-bit shift register based on the configuration of Fig. 1a is shown in Fig. 2. The information stored in the register is shifted by one place in four steps. In the initial state, flip-flops  $T_1, T_2$  store information and  $T'_1, T'_2$  are reset to the 0 state. A pulse on sample terminal 1<sub>2</sub> transfers the information from  $T_1, T_2$  to  $T'_2, T'_1$ . A second pulse on reset 0<sub>1</sub> resets  $T_1, T_2$ . A third pulse on sample terminal 1<sub>1</sub> transfers the information from  $T'_1, T'_2$  to  $T_1, T_2$ . Finally, the fourth pulse on reset 0<sub>2</sub> resets  $T'_1, T'_2$ . When a bias voltage of 15 v is used, the 0 state is identified by 11 v and the 1 state, by 3 v. The criterion of proper operation of the register was taken to

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ACC NR: AT6008790

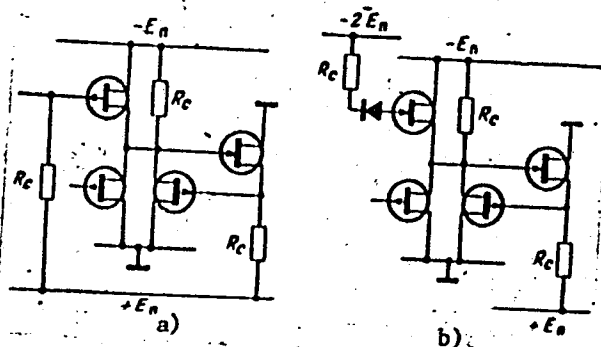


Fig. 1. Set and reset circuits

be the absence of errors when bit combinations 11 and 01 were circulated. The register performed satisfactorily with individual bias voltage fluctuations of  $\pm 20\%$ , combined bias voltage fluctuations of  $\pm 10\%$ , input-signal variations of  $15\%$ , and resistance variations in the drain circuit of  $\pm 50\%$ . The maximum working frequency for the register based on Fig. 1a was 30 kc; for the one based on Fig. 1b was 43 kc. At 20 C, the fan-out was 4—5. The speed of the shift register may be increased by a

Card 2/3

ACC NR: AT6008790

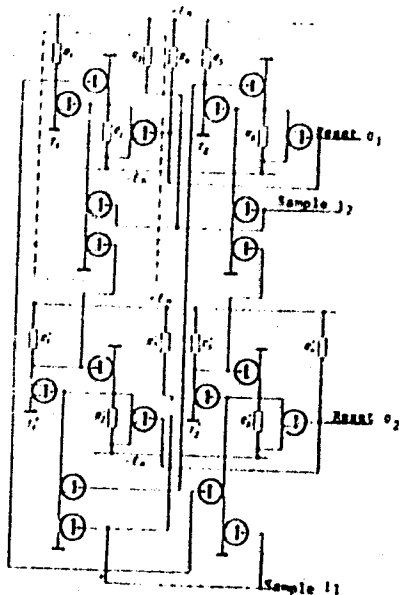


Fig. 2. Two-stage shift register

factor of 10—15 if field-effect transistors with transconductance of 1 mamp/v are used instead of those with transconductance of 0.1—0.4 mamp/v. Orig. art. has: 10 figures.

SUB CODE: 09/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 001/ ATD PRESS: 4222 [BD]

Card 3/3

SONIN, M. Ya.

SONIN, M. Ya.; EYDEL'MAN, B., redaktor; LYASNIKOV, I., redaktor.

[Training skilled workers in industry] Podgotovka kvalifi-  
tsirovannykh rabochikh na proizvodstve. 2., dop. izd.

[Moskva] Gos. izd-vo polit. lit-ry, 1954. 209 p. (MLRA 7:8)

(Technical education) (Employees, Training of)

Сонин, М. И.

USSR/Miscellaneous

Card 1/1     Pub. 128 - 21/32

Authors     :   Sonin, M. Ya., and Katsenelinboygen, A. I.

Title        :   Problems in listing duties and the distribution of work of individual workers  
              during the introduction of leading methods in the organization of labor

Periodical   :   Vest. mash. 11, 78-80, Nov 1954

Abstract     :   Problems in listing duties and the distribution of work of individual workers  
              in connection with the introduction of leading methods in the organization  
              of labor, multi-machine operation, high-speed cutting and machine layout,  
              are discussed and explained.

Institution   :   ...

Submitted    :   ...

KATSENELINBOYCHEN, A.I.; KLIMENKO, K.I., doktor ekonomicheskikh nauk, redaktor; TAURIT, G.E., inzhener, retsenzent; SONIN, M.Ya., kandidat ekonomicheskikh nauk, redaktor; MATVEYEVA, Ye.N., tekhnicheskiiy redaktor; TIKHONOV, A.Ya., tekhnicheskiiy redaktor

[Automatization of production processes and problems in work organization; changes in the division of labor and the qualifications of workers under conditions of the automatization of metalworking processes] Avtomatizatsiya proizvodstvennykh protsessov i voprosy organizatsii truda; izmeneniya v razdelenii truda i kvalifikatsii rabochikh pri avtomatizatsii protsessov metalloobrabotki. Pod red. Klimenko. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry 1956. 141 p. (MLRA 9:12)

(Automatic control) (Machinery industry)



SONIN, Mikhail Yakovlevich; KALMYK, V.A., red.; PONOMAREVA, A.A.,  
tekhn.red.

[Reproduction of the labor force in the U.S.S.R. and balanced  
allocation of work] Vospriizvodstvo rabochei sily v SSSR i  
balans truda. Moskva, Gosplanizdat, 1959. 367 p. (MIRA 13:4)  
(Labor and laboring classes)

PRUDENSKIY, G.A., red.; STARODUBSKIY, L.V., otv. red.; ZYKOV, S.S.,  
red.; PERVUSHIN, V.A., red.; SONIN, M.Ya., red.; ROMANOVA,  
E.A., red.; MAZUROVA, A.F., tekhn. red.; VYALYKH, A.M.,  
tekhn. red.

[Problems of labor resources in Siberia] Voprosy trudovykh  
resursov v raionakh Sibiri. Pod obshchei red. G.A.Prudenskogo.  
Novosibirsk, Izd-vo Sibirskogo otd-nie AN SSSR, 1961. 168 p.  
(MIRA 15:10)

1. Akademiya nauk SSSR. Sibirskoye otdeleniye. Institut ekono-  
miki i organizatsii promyshlennogo proizvodstva.  
(Siberia--Labor supply--Statistics)

LAZUTKIN, Ye.S.; RUSANOV, Ye.S.; EYDEL'MAN, R.A.; TRUBNIKOV, S.V.; KAPLAN, I.I.; ZAGORODNIKOV, M.I.; GOL'TSOV, A.N.; TATARINOVA, N.I.; SONIN, M.Ya.; SHISHKIN, N.I., doktor geogr.nauk; ANTOSENKOV, Ye.G.; ZHMYKHOVA, I.I.; KOSYAKOV, P.O.; MATROZOVA, I.I.; ZELENSKIY, G.N.; SEMENKOV, Ya.S.; ZALKIND, A.I., red.; RUSANOV, Ye.S., red.; SHTEYNER, A.V., red.; MIKHAL'CHENKO, N.Z., red.; GERASIMOVA, Ye.S., tekhn. red.

[Manpower of the U.S.S.R.; problems in distribution and utilization]  
Trudovye resursy SSSR; problemy raspredeleniia i ispol'zovaniia. Pod  
red. N.I.Shishkina. Moskva, Izd-vo ekon.lit-ry, 1961. 243 p. (MIRA 14:12)

Moscow. Nauchno-issledovatel'skiy institut.  
(Manpower)

ALLAKHVERDYAN, D.A., prof.; AMINOV, A.M., doktor ekon. nauk; AGLAS, M.S., prof.; D'YACHENKO, V.V., dots.; ZLOBIN, I.D., prof.; KADYSHEV, L.A., dots.; KARNAUKHOVA, Ye.S., prof.; KOTOV, G.G., prof.; LEVITANUS, I.M., dots.; LIVSHITS, A.L., dots.; LYAPIN, A.P., prof.; MAKAROVA, M.F., prof.; MASLOV, P.P., prof.; SONIN, M.Ye., doktor ekon.nauk; SOROKIN, G.M.; STRUMILIN, S.G., akademik; TUMANOVA, L.V., dots.; TUROVTSEV, V.I., dots.; FIGURNOV, P.K., prof.; MOKHOVA, N.I., dots., red.; SHCHERBAKOVA, V.V., dots., red.; SHVEYTSEV, Ye.K., red.; MURASHOVA, V.A., tekhn. red.

[The economics of socialism] Politicheskaya ekonomiya sotsializma. Izd.2., perer. Moskva, Gos.izd-vo "Vysshaya shkola," 1962. 614 p. (MIRA 16:3)

1. Chlen-korrespondent Akademii nauk SSSR (for Sorokin).  
(Economics) (Communism)

SONIN, N.Ya.; AKHIEZER, N.I., redaktor; RYVKIN, A.Z., redaktor.

[Research on cylindrical functions and special polynomials]  
Issledovaniia o tsilindricheskikh funktsiiakh i spetsial'nykh  
polinomakh. Red. i kommentarii N.I.Akhiezera. Moskva, Gos. izd-vo  
tekhn-teoret. lit-ry, 1954. 243 p. (MLBA 7:8)  
(Bessel's functions) (Polynomials)

SONIN, S. D.

Moscow Basin - Coal Mines and Mining

Mining strata of higher capacity in the Moscow Coal Basin, Nauch. trudy Mosk. gor. inst.,  
no. 8, 1950

Monthly List of Russian Accessions, Library of Congress, October 1952, Unclass.

Moscow Basin - Coal Mines and Mining

Experience with layer mining of thick seams in the Moscow Basin, Ugol', 27, no. 7, 1952.

9. MONTHLY LIST OF RUSSIAN ACCESSIONS, Library of Congress, October 1952 Uncl.

VOROB'YEV, B.M.; SONIN, S.D., redaktor; GNEDIN, V.Ye., redaktor;  
IL'INSKAYA, G.G., tekhnicheskii redaktor; ANDREYEV, G.G.,  
tekhnicheskii redaktor.

[Mining thick steeply dipping coal seams and hydraulic  
filling of mined areas] Razrabotka moshchnykh krutopadaiu-  
shchikh plastov; s gidravlicheskoj zakladkoj vyrabotannogo  
prostranstva. Moskva, Ugletekhizdat, 1955. 150 p. [Microfilm]  
(Coal mines and mining) (MLRA 9:1)



SONIN, Semyon Danilovich, professor; REZNIKOV, G.A., otvetstvennyy redaktor;  
OKHRIMENKO, V.A., redaktor izdatel'stva; MADEINSKAYA, A.A.,  
tekhnicheskii redaktor

[Working thick seams of coal in the Moscow Basin] Razrabotka  
moshchnykh ugol'nykh plastov v Podmoskovnom basseine. Moskva,  
Ugletekhizdat, 1957. 160 p. (MLRA 10:8)  
(Moscow Basin--Coal mines and mining)

SONIN, S.D., prof.; SELETSKIY, R.A., dots., kand.tekhn.nauk; KILYACHKOV,  
A.P., dots., kand.tekhn.nauk; CHERNYAK, I.L., gornyy inzh.

Analysis of certain basic factors hampering the growth of labor  
productivity in Donets Basin mines. Ugol' 32 no.12:9-13 D '57.  
(MIRA 11:1)  
(Donets Basin--Coal mines and mining)

SONIN, S.D., prof.; SELETSKIY, R.A., dotsent; VOSTROV, I.D., dotsent

Advancing and retreating systems for mining levels in Donets Basin  
flat seams. Nauch. dokl. vys. shkoly; gor. delo no.1:15-26 '58.  
(MIRA 11:6)

1. Predstavlena kafedroy razrabotki plastovykh mestorozhdeniy  
Moskovskogo gornogo instituta im. I.V. Stalina.  
(Donets Basin--Mining engineering)

SONIN, S.D., prof.; VOSTROV, I.D., dots., kand.tekhn.nauk

Mine development and order of working Donets Basin flat seams  
using the method of advancing longwalls on strike. Nauch. dokl. vys.  
shkoly; gor. delo no.3:3-13 '58. (MIRA 11:9)

1. Predstavlena kafedroy razrabotki plastovykh mestorozhdeniy  
Moskovskogo gornogo instituta im. I.V. Stalina.  
(Donets Basin--Coal mines and mining)

SONIN, S.D., prof.; VOROB'YEV, B.M., dots.

Variants of the pillar system with panelling and leaving of  
rock in the mine. Ugol' Ukr. 3 no.3:7-12 Mr '59.

(MIRA 12:5)

(Coal mines and mining)

(Mine filling)

SONIN, Semen Danilovich; VOROB'YEV, Boris Mikhaylovich; ZHUKOV,  
V.V., otv. red.; SMIRENSKIY, M.M., red. izd-va; MINSKER,  
L.I., tekhn. red.

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